June 13, 2001

MR BOB ELLER
CALIFORNIA ENERGY COMMISSION
1516 9TH ST
SACRAMENTO CA 95814-5540

Cumulative Criteria Pollutant Impact of New Energy Projects in the Chula Vista/Otay Mesa Area of San Diego County

Enclosed is a revised air quality impact analysis (AQIA) prepared by the San Diego County Air Pollution Control District for the cumulative criteria pollutant impacts from five new small power plants and the Otay Mesa Generating Facility in the Chula Vista/Otay Mesa Area. Impacts from the South Bay Power Plant are considered included by utilization of background air quality from the District's local air monitoring station data.

This revised cumulative analysis assumes these plants operating at full capacity and fueled exclusively on natural gas with the exception of Larkspur which is assumed to be in a curtailment liquid fuel operation. The increased size of Ramco was also introduced in the revised analysis. Results still indicate emissions from the subject installations will not result in an exceedance of applicable California and Federal Ambient Air Quality Standards.

If you have any questions please call me at (858) 650-4607, Ralph DeSiena at (858) 650-4641 or Michael Lake at (858) 650-4590.

DANIEL A. SPEER
Senior Air Pollution Control Engineer

DS:el

enclosure

June 13, 2001

TO: MIKE LAKE, CHIEF, ENGINEERING
DAN SPEER, SENIOR ENGINEER

FROM: Ralph DeSiena, Associate Meteorologist

OTAY MESA PEAKER PROJECTS AND OTAY MESA GENERATING PROJECT REVISED CUMULATIVE IMPACTS ANALYSIS FOR CRITERIA POLLUTANTS

I have performed additional modeling in support of a cumulative impact analysis for five proposed gas fired peaker turbines and the Otay Mesa Generating Facility (510 MW) in the Chula Vista/Otay Mesa region. Revisions to the modeling performed included a new 62.4 MW replacement turbine at the RAMCO facility and emission revisions to reflect continuous liquid fuel firing (gas curtailment) of one LARKSPUR facility turbine. The revised modeling scenario assumed all other facilities operating on gas at full load with control equipment operating as per the previous analysis. The ISC model was used to determine predicted maximum cumulative 1-Hour and 8-Hour CO concentrations, 1-Hour and Annual NO_2 concentrations and 24-Hour and Annual PM10 concentrations in the project vicinity. The modeling was performed in accordance with District guidance. Regulatory default settings were used and building downwash was considered. The Good Engineering Practice (GEP) stack height was used for all modeling performed. Three years of meteorological data (1993-1995) for Miramar NAS, CA were used for the modeling. The receptor grid was sufficiently dense (5000 Receptors) to identify maximum impacts. USGS digital terrain data was used to determine receptor elevations. The modeling assumed 24 Hr/day and 365 days/year operations for all facilities.

A review of the Chula Vista monitoring station data for 1996-1998 indicated worst-case 1-Hour and 8-Hour background CO concentrations of 6.5 mg/m^3 and 4.4 mg/m^3 respectively. Worst-case 1-Hour and Annual NO_2 concentrations were 207 ug/m^3 and 36 ug/m^3 respectively. Worst-case 24-Hour, Annual Arithmetic and Annual Geometric concentrations were 62 ug/m^3, 28 ug/m^3 and 27 ug/m^3 respectively.

The results of the modeling including worst-case monitored background concentrations indicate that California and Federal standards for CO and NO_2 will not be exceeded due to the operation of these facilities as proposed. Tables 1 through 6 summarize the predicted impacts for All facilities, Otay Generating facility only and Peaker Turbines only.

Table 1
CO Impacts and Air Quality Standards –All Facilities

Average Period	Predicted Impact mg /m^3	Background mg/m^3	Total Impact mg /m^3	California Standard mg /m^3	Federal Standard mg /m^3
1-Hour	.14	6.5	6.64	23	40
8-Hour	.09	4.4	4.49	10	10

Table 2
CO Impacts and Air Quality Standards—Otay Generating

Average Period	Predicted Impact mg /m^3	Background mg/m^3	Total Impact mg /m^3	California Standard mg /m^3	Federal Standard mg /m^3
1-Hour	.13	6.5	6.63	23	40
8-Hour	.07	4.4	4.47	10	10

Table 3
CO Impacts and Air Quality Standards—Peaker Turbines

Average Period	Predicted Impact mg /m^3	Background mg/m^3	Total Impact mg /m^3	California Standard mg /m^3	Federal Standard mg /m^3
1-Hour	.04	6.5	6.54	23	40
8-Hour	.03	4.4	4.43	10	10

Table 4
NO_2 Impacts and Air Quality Standards—All Facilities

Average Period	[1]Predicted Impact υg/m^3	Background υg/m^3	Total Impact υg/m^3	California Standard υg/m^3	Federal Standard υg/m^3
1-Hour	111.4	207	318.4	470	None
Annual	1.02	36	37.02	None	100

[1] Assumes $NO_x = NO_2$

Table 5
NO_2 Impacts and Air Quality Standards—Otay Generating

Average Period	[1]Predicted Impact υg/m^3	Background υg/m^3	Total Impact υg/m^3	California Standard υg/m^3	Federal Standard υg/m^3
1-Hour	63.4	207	270.4	470	None
Annual	0.49	36	36.49	None	100

[1] Assumes $NO_x = NO_2$

Table 6
NO_2 Impacts and Air Quality Standards—Peaker Turbines

Average Period	[1]Predicted Impact υg/m^3	Background υg/m^3	Total Impact υg/m^3	California Standard υg/m^3	Federal Standard υg/m^3
1-Hour	71.0	207	278.0	470	None
Annual	0.66	36	36.66	None	100

[1] Assumes $NO_x = NO_2$

Cumulative PM10 emissions were modeled assuming all facilities were operating 24/day and 365 days/year. Three years of meteorological data (1993-1995) for Miramar NAS, CA were used with the ISC model. The maximum predicted 24-Hour impact for all facilities and for all 3 years modeled was 24.70 υg/m^3. The Maximum predicted impact for Otay Generating only and Peaker Turbines only was 21.38 υg/m^3 and 5.96 υg/m^3 respectively. Otay Generating contributed 86.6% of the maximum cumulative impact for all facilities at the predicted maximum impact point. Since the 24-hour California Standard is exceeded by background concentrations in the project area an evaluation of whether addition exceedances would be caused by operation of these facilities would need to be conducted. Based upon the ISC modeling results this evaluation would require modeling all days within the period with 24-hour concentrations $\geq$ 26 υg/m^3 but $\leq$ 50 υg/m^3, the California Standard. An alternative approach would be to perform this analysis using EPA's proposed new refined model, AERMOD, which tends to yield less conservative predicted impacts in complex terrain as compared to the ISC model which has been demonstrated to over predict. This would likely reduce the number of days required for the analysis of additional California Standard exceedances resulting from the proposed operation of these facilities in the region.

Without performing this modeling some assumptions of the expected results may be made based upon the Otay Generating project analysis. The AERMOD modeling conducted for that analysis predicted a maximum 24-hr PM10 concentration of 4.96 υg/m^3 for this facility only. Therefore, all days within the modeled period with 24-hour concentrations $\geq$ 45 υg/m^3 but $\leq$ 50 υg/m^3 were individually modeled to determine whether additional California Standard violations occurred. The maximum predicted impact for all of these days was 1.6 υg/m^3 and the maximum background concentration was 48 υg/m^3. Adjusting this predicted impact to include all facilities based upon the above ISC results (Otay Generating = 86.6% of the total impact) and then adding that result to this background (1.9 + 48= 49.9 υg/m^3) would not result in an exceedance of the California standard. This analysis can be verified by additional modeling using AERMOD if necessary. Results for the Annual standard analysis for all facilities are presented in Table 7.

Table 7
PM10 Impacts and Air Quality Standards

Average Period	**Predicted Impact υg/m^3**	**Background υg/m^3**	**Total Impact υg/m^3**	**California Standard υg/m^3**	**Federal Standard υg/m^3**
Annual Geometric	[1]0.8	27	27.8	30	
Annual Arithmetic	0.8	28	28.8		50

[1] Arithmetic Average

A summary of the modeling results and the emissions and emission release parameters for each facility used for this analysis are attached.

RALPH DESIENA

RD:rd

Attachments

OTAY MESA CUMULATIVE IMPACTS FOR CRITERIA POLLUTANTS-REVISED

File	Pol	Average	Group	Rank	Conc.	East(X)	North(Y)	Time	Met File	Rec.
OTAY MESA CUMALITIVE IM	CO	1-HR	ALL	1ST	135.38	509303	3604384	94072704	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	CO	1-HR	OTAYGEN	1ST	125.07	508903	3604584	93081223	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	CO	1-HR	PEAKERS	1ST	40.50	508703	3604784	93011103	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	CO	8-HR	ALL	1ST	89.43	509303	3604384	95092824	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	CO	8-HR	OTAYGEN	1ST	74.01	509303	3604384	95092824	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	CO	8-HR	PEAKERS	1ST	27.47	508703	3604784	95092824	MMIN3_5.ASC	5000
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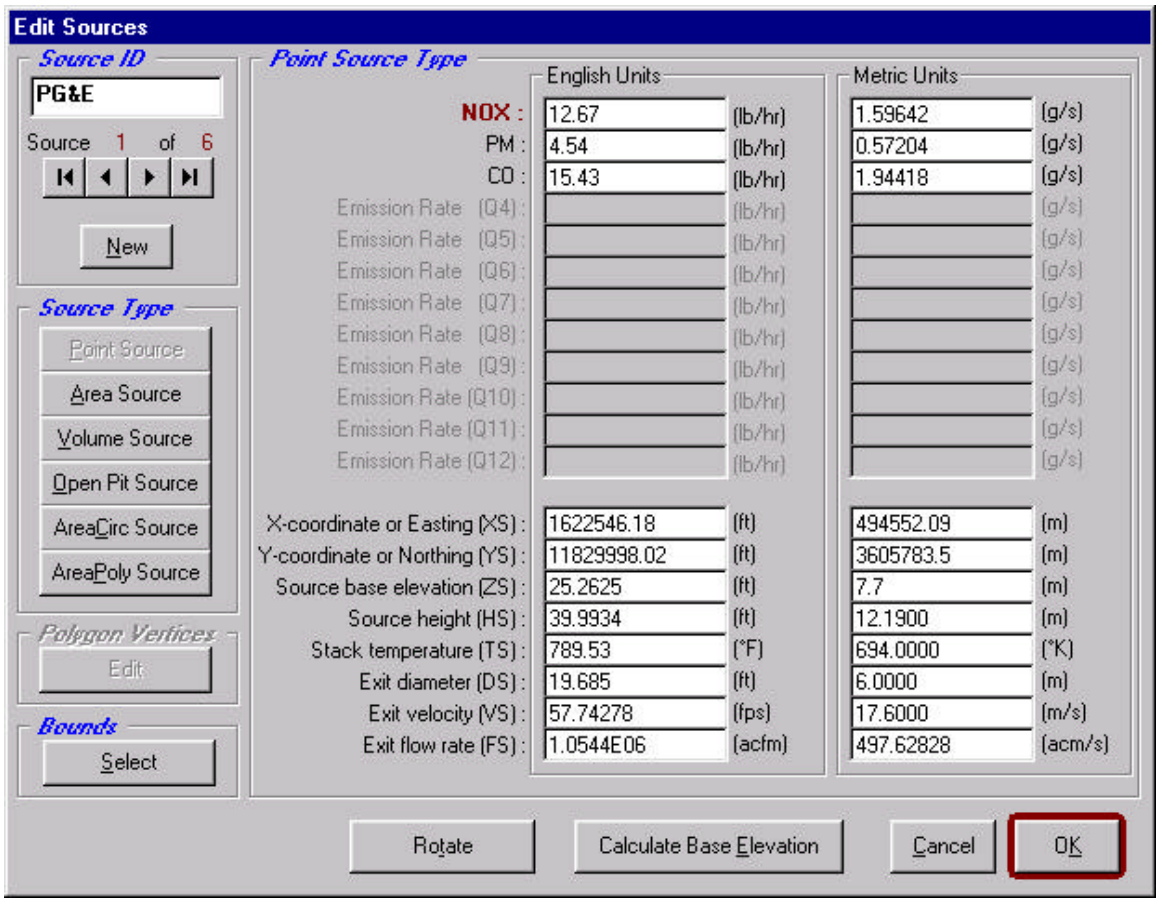
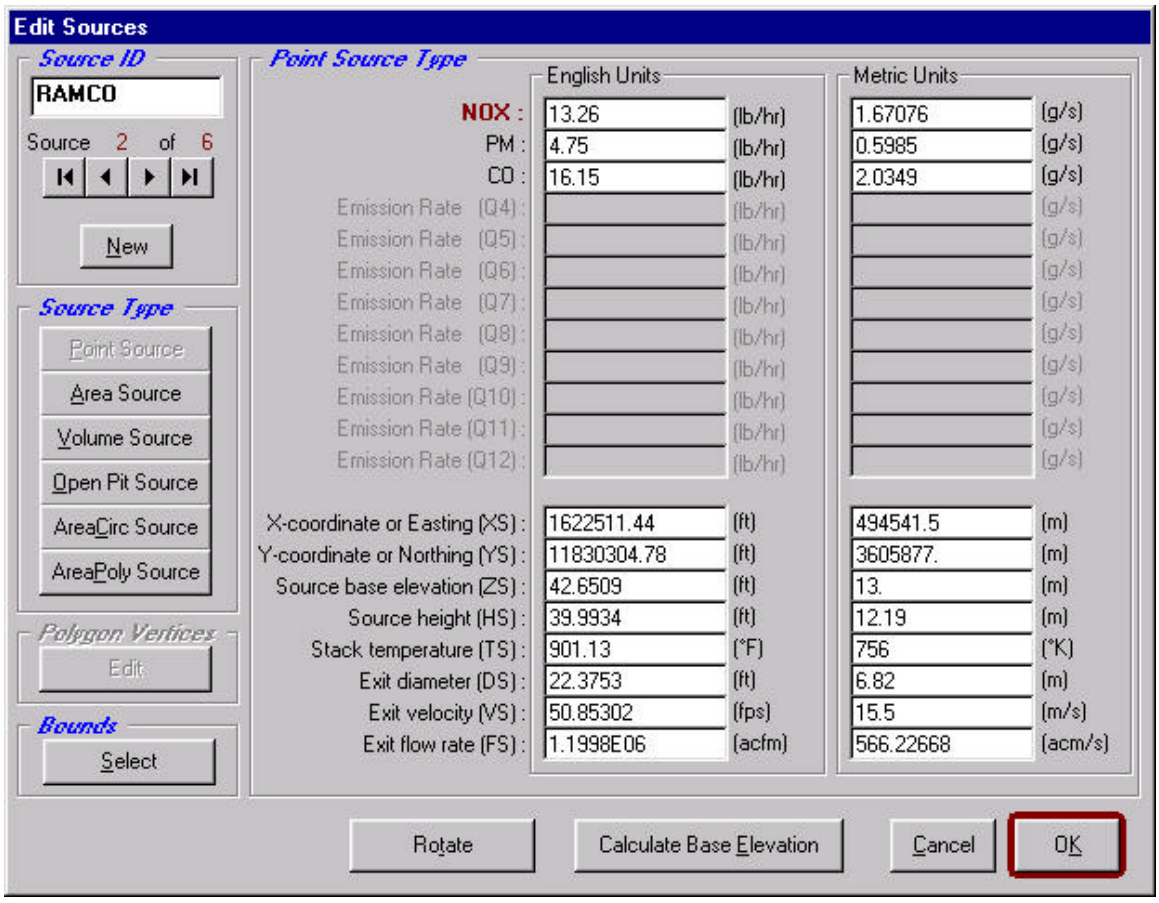
OTAY MESA CUMALITIVE IM	NOX	PERIOD	OTAYGEN	1ST	0.49	509903	3603784	26280	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	NOX	PERIOD	PEAKERS	1ST	0.66	508703	3604784	26280	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	NOX	1-HR	ALL	1ST	111.42	509103	3604384	95092722	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	NOX	1-HR	OTAYGEN	1ST	63.39	508903	3604584	93081223	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	NOX	1-HR	PEAKERS	1ST	71.01	508703	3604784	93011103	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	PERIOD	ALL	1ST	0.77	509903	3603784	26280	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	PERIOD	OTAYGEN	1ST	0.62	509903	3603784	26280	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	PERIOD	PEAKERS	1ST	0.19	508703	3604784	26280	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	24-HR	ALL	1ST	24.70	509303	3604384	95092824	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	24-HR	OTAYGEN	1ST	21.38	509303	3604384	95092824	MMIN3_5.ASC	5000
OTAY MESA CUMALITIVE IM	PM	24-HR	PEAKERS	1ST	5.96	508703	3604784	95092824	MMIN3_5.ASC	5000

OTAY MESA CUMULATIVE IMPACTS-REVISED
EMISSION RELEASE PARAMETERS

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Emission Rate (Q9) : (lb/hr) (g/s)
Emission Rate (Q10) : (lb/hr) (g/s)
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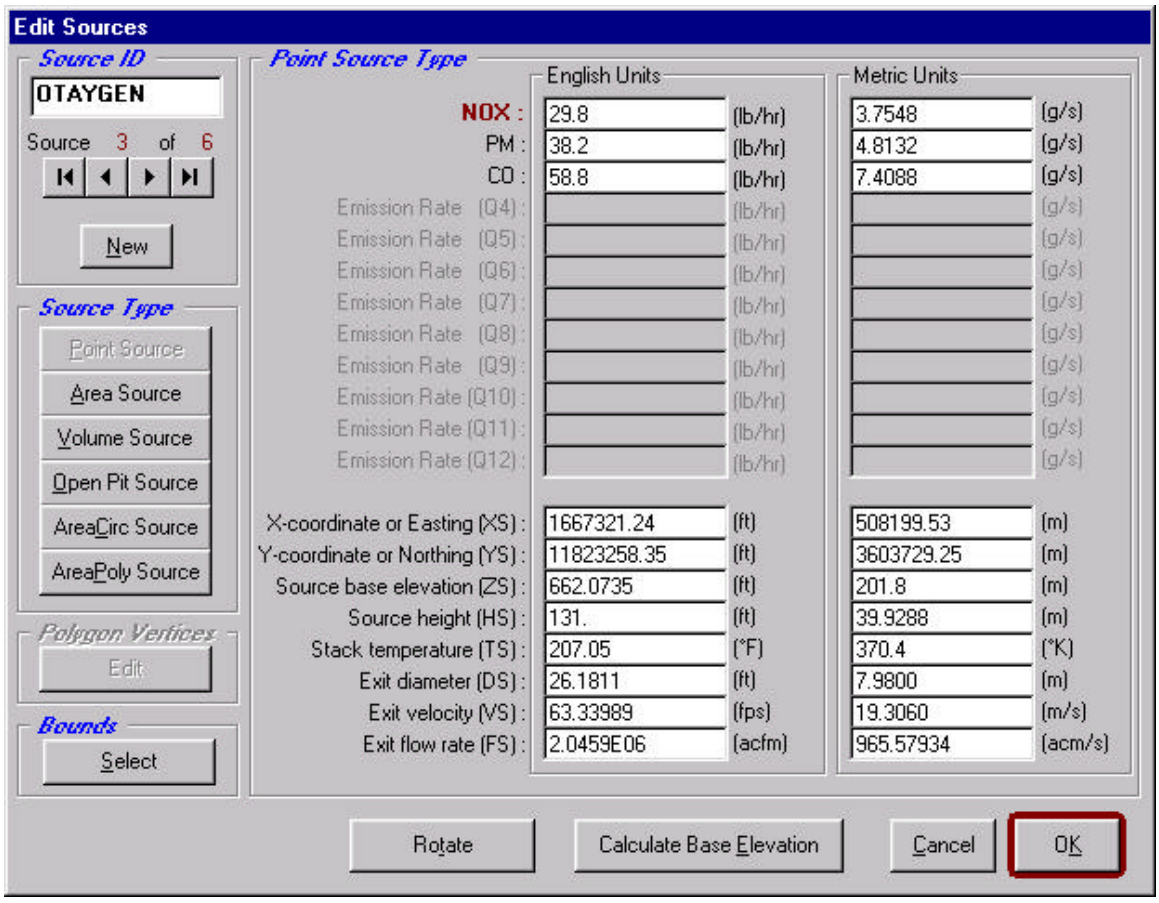
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Metric Units
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Emission Rate (Q9) : (lb/hr) (g/s)
Emission Rate (Q10) : (lb/hr) (g/s)
Emission Rate (Q11) : (lb/hr) (g/s)
Emission Rate (Q12) : (lb/hr) (g/s)
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Y-coordinate or Northing (YS) : 11823258.35 (ft) 3603729.25 (m)
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Source height (HS) : 131. (ft) 39.9288 (m)
Stack temperature (TS) : 207.05 (°F) 370.4 (°K)
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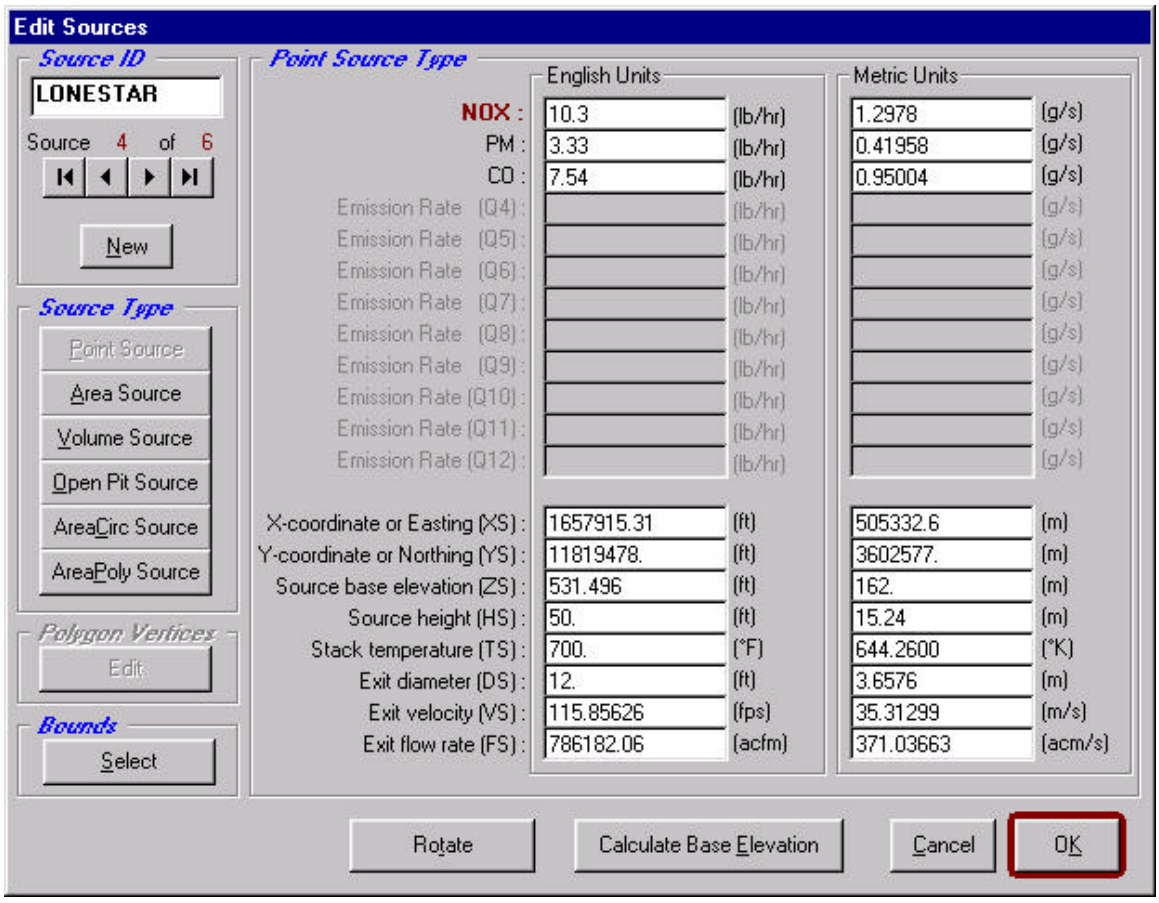
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English Units
Metric Units
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PM : 3.33 (lb/hr) 0.41958 (g/s)
CO : 7.54 (lb/hr) 0.95004 (g/s)
Emission Rate (Q4) : (lb/hr) (g/s)
Emission Rate (Q5) : (lb/hr) (g/s)
Emission Rate (Q6) : (lb/hr) (g/s)
Emission Rate (Q7) : (lb/hr) (g/s)
Emission Rate (Q8) : (lb/hr) (g/s)
Emission Rate (Q9) : (lb/hr) (g/s)
Emission Rate (Q10) : (lb/hr) (g/s)
Emission Rate (Q11) : (lb/hr) (g/s)
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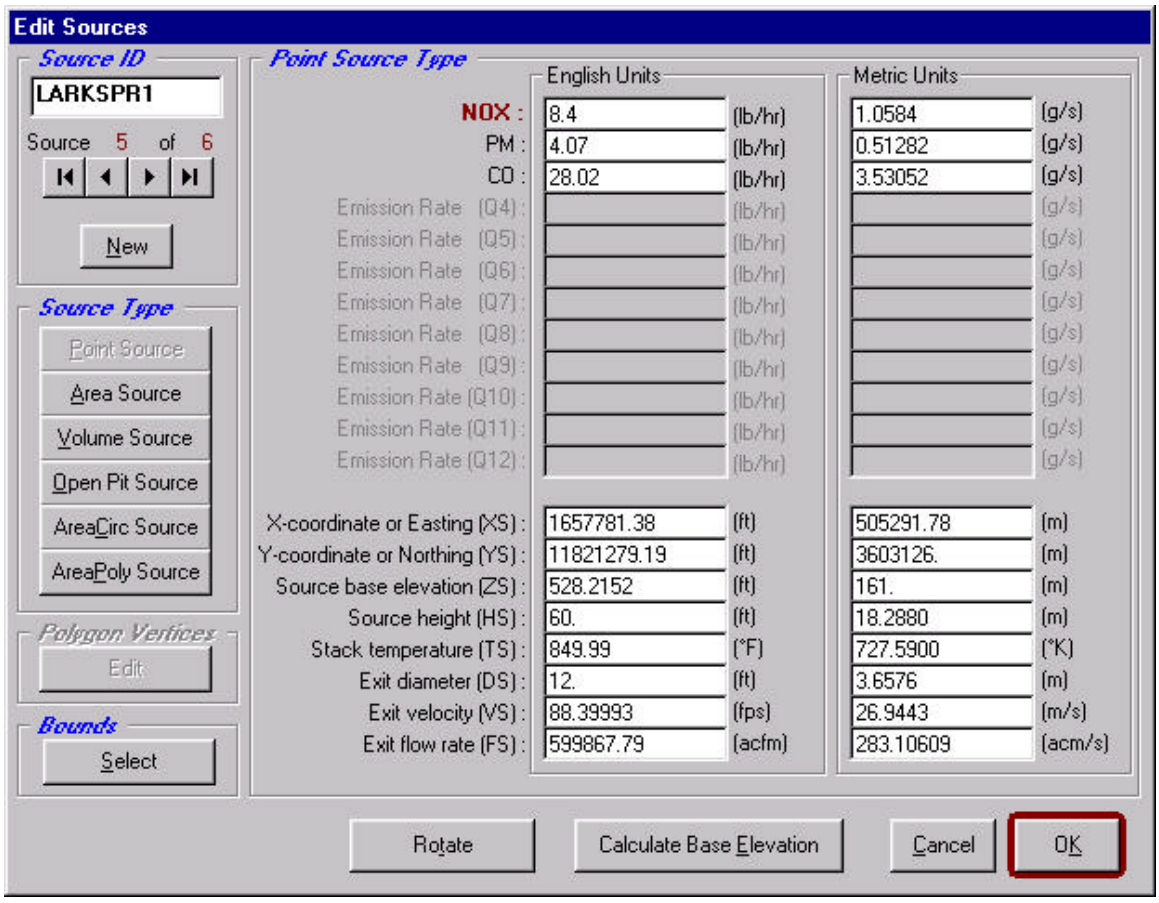
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Metric Units
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Emission Rate (Q5) : (lb/hr) (g/s)
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Y-coordinate or Northing (YS) : 11821279.19 (ft) 3603126. (m)
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Source height (HS) : 60. (ft) 18.2880 (m)
Stack temperature (TS) : 849.99 (°F) 727.5900 (°K)
Exit diameter (DS) : 12. (ft) 3.6576 (m)
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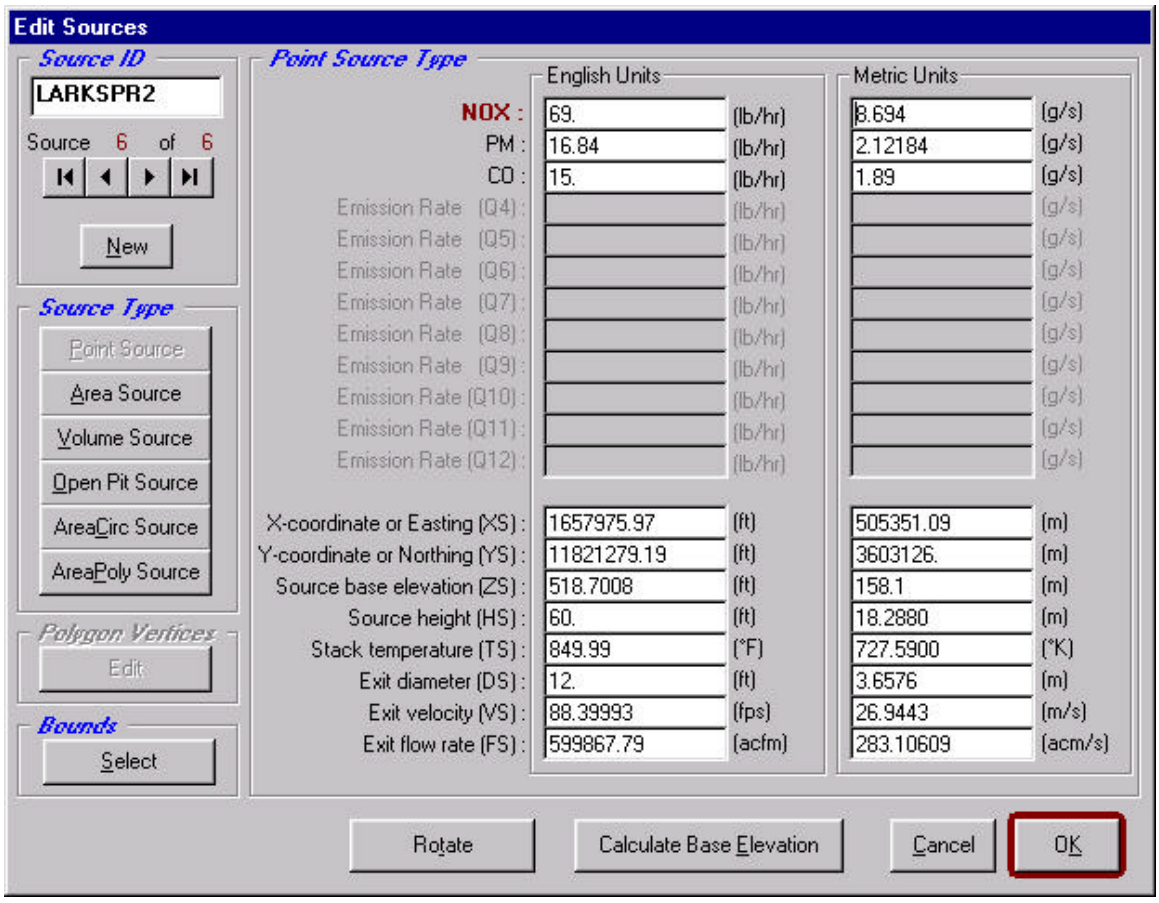
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Y-coordinate or Northing (YS) : 11821279.19 (ft) 3603126. (m)
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Exit velocity (VS) : 88.39993 (fps) 26.9443 (m/s)
Exit flow rate (FS) : 599867.79 (acfm) 283.10609 (acm/s)
Rotate
Calculate Base Elevation
Cancel
OK

June 4, 2001

TO: Michael Lake
Chief, Engineering Division

FROM: Judith Lake
Chief, Monitoring and Technical Services

CUMULATIVE IMPACTS ANALYSIS FOR CRITERIA POLLUTANTS IN OTAY MESA AREA

You have requested clarification regarding the appropriateness of adding air quality impacts associated with operation of the South Bay power plant to the cumulative impact analysis for the five new peaker turbines and the Otay Mesa Generating Facility performed by Ralph DeSiena.

The analysis prepared by Ralph DeSiena indicates the inclusion as background of ambient air quality data for the period of 1996-1998. The South Bay power plant was operational throughout this time period. Adding additional air quality impacts for existing equipment is inappropriate and counter to our long established policies and practices. The effect of doing so is to "double count" emissions from such equipment. This is not consistent with EPA guidance or the standard practices of air regulatory agencies. The conclusion of Ralph DeSiena's analysis, that the projects would not cause exceedances of ambient air quality standards, has been reached using methods consistent with standard District practice and applicable EPA guidance.

If you have any questions regarding this matter or I can provide additional assistance, please let me know.